Muscles of lower extremities.

12) Glutei - (a course muscle, supports trunk on head of femur.
O - buttocks
A - brings the body in direct position, when the body is bent forward.

13) Psoas
O - last dorsal + all lumbar vertebrae.
I - into femur
A - to flex + rotate the hip.

14) Posterior - Femoral.
O - back of femur.
I - covers back of thigh.
A - to flex the knee + extend the thigh.

15) Anterior - Femoral - front of the leg.

16) Quadriceps - greatest extensor of leg.
A - flex thigh and are antagonistic to ham strings

17) Sartorius - longest muscle in the body.
O - crest of the hip bone.
I - shin - bone
A - assists in knee bend.

18) Gastrocnemius - in the calf of the leg.
O - 2 origins in the head of the femur.
I - into the heel to the tendon which goes to the heel (the strongest tendon in the body)
A - bends the leg and flexes the knee.

The Heart.

Position - hollow muscular organ
- size of a closed fist.
- situated a little to the left of the thorax.

Size - about 9 oz.
Structure - is composed of right heart and left heart.
the auricles situated above the ventricles.
The opening between the auricle and ventricle is called the auricula ventricular orifice.
The auricle has thinner walls than the ventricle. the wall of the left ventricle is thicker because of the greater pressure of blood.

Muscles of the heart are striated, involuntary muscles.
These muscles are thrown into little columns.
Capillary muscles - chordae tendinae - small cords that pull the valves - tricuspid
mitral

Passage of blood through the heart.
Impure blood comes to heart by the superior and inferior Vena Cava into the right auricle.
Then it goes to the right ventricle by tricuspid valve. 3 cusps
It leaves heart by pulmonary artery from right auricle.
(the pulmonary artery carries impure blood.)
The blood goes to the lungs.
Pulmonary veins bring it back to heart into the left auricle.
From the left auricle the blood goes into the left ventricle by auricula ventricular orifice guarded by the mitral valve. 2 cusps.
From the left ventricle, the blood leaves by aorta - coronary artery guarded by the semilunar valves.

Heart beat - 72 times a minute.
- the beat is by contraction of the auricle, then the ventricle and then a pause.
- the heart is governed by two sets of nerves.

Bile - removal of excess of C & H2 from blood
- digestive
- 30 - 40 oz. daily.

hepatic duct - bile
portal vein, hepatic artery to liver
hepatic vein, hepatic duct from liver.

portal vein - rich but dark.

glycogen (starch or sugar in comp.
cells of lobules.

Dr a link call blood
hepatic artery.

Heart - soft
r + l. auricle - tricuspid valve
r + l. ventricle - mitral valve.

R. auricle - thin irregular walls.
vessels - vena cava superior - upper parts.
" " inferior - lower "

R. ventricle - thick walls - papillary muscles.
chordae tendineae
three cusps - form tricuspid valve.
vessels - r. pul. artery to r. lung } semilunar valves
l. pul. artery to l. lung } below junction

L. auricle - thin irregular walls.
vessels - r. pul. vein from r. lung.
l. pul. vein " l. lung.

L. ventricle - very thick walls.
papillary muscles, chordae tendineae
two cusps - form mitral valve.
vessels - aorta - to all parts.
semilunar valves
coronary ~~two~~ arteries commence outside S. valves

r. auricle
r. ventricle
pul. arteries
lungs (cap. system)
pul. veins
left. auricle

} pulmonary circulation

~~left. ventricle~~
l. auricle
le. ventricle
aorta
cap. networks to all parts.
venae cavae.
r. auricle

} systemic circulation

coronary arteries
cap. networks
coronary veins
r. auricle

} coronary circulation

1) vagus nerve - from the base of the brain (slows up the heart)
2) sympathetic ganglia.

The auricles contract simultaneously, and force the blood into the ventricles. The ventricles then contract, the valves between the auricles and the ventricles are closed, the chordae tendonae are tightly stretched, and the semi-lunar valves open, and the blood is forced into the great arteries. Then there is a pause.

Beating of the heart - the apex of the heart is tilted against the wall of the chest.
In old age - heart beats 60 times a minute.
In childhood - " " 120 " " "
The dull sound of heart - is closing of valves between auricular ventricular valves.
The sharp sound - is the semi-closing of semi-lunar valves.

Blood is circulated through the system by arteries, capillaries and veins. Everything but cartilage, the top layer of skin and the enamel of teeth and blood.
Arteries - composed of - outer areolar connective tissue.
middle muscular coat - (elastic and thin)
epithelial tissue (areolar)
Capillaries - a network of small vessels which connect arteries with veins.
Veins - contain no elastic tissue (contain small valves which prevent the back flow of the blood)

Systematic circulation - circulation from the liver.
Pulmonary circulation - purification of blood from the heart to the lungs.
pulmonary artery to the lungs - pulmonary veins
Coronary circulation - circulation of blood in heart. Rich

Lungs.

Trachea - structure - made up of rings of cartilage and fibrous tissue, and is lined with ciliated epithelial & mucous membrane.
rings - shaped like a "C", complete in front and not behind. They are connected with one another by fibrous tissue.
bronchi - left and right.
in structure similar to trachea.
The two bronchi divide into bronchial tubes, the rings of cartilage are imperfect.
The small alls terminate in an air cell.

Larynx - made up of the top two rings of the trachea.
contains the vocal chords and the epiglottis.
It is this cartilage that closes the glottis.

Lungs - left and right.
- surrounded by pleura (double fold)
- right has 3 lobes
- left has 2 lobes.

Vessels - air vessels, bronchial tubes, cells and blood vessels: pulmonary artery, vein, and capillaries.

Air in the lungs - after ordinary inspiration 200 cu. in.
stationary air.
100 cu. in. residual and never expelled.
100 cu. in. supplemental

After ordinary inspiration - 100 cu. in. residual.
100 cu. in. supplemental.
50 cu. in. tidal
250 cu. in.

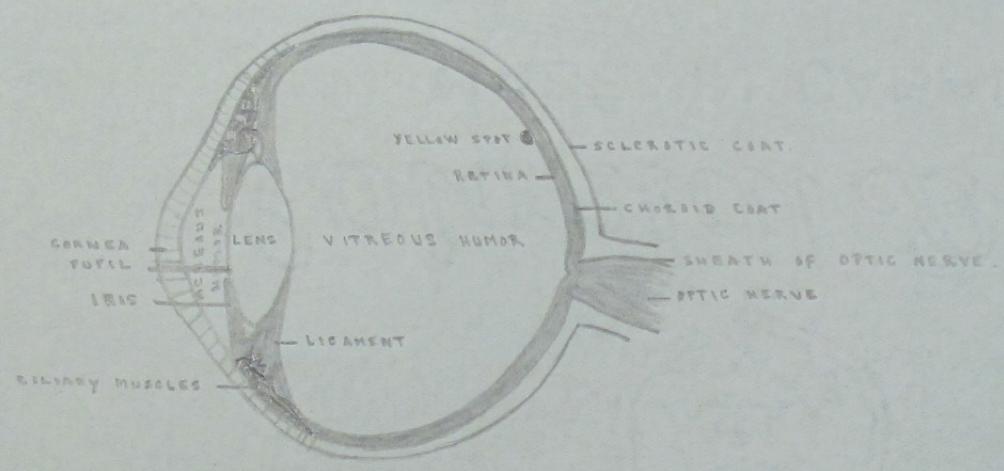
Inspiration - external intercostal muscles contract and raise ribs, make chest wider, diaphragm depressed and chest made deeper, lungs expand with chest and air goes through nose and mouth.

larynx - thyroid cart. - hyoid bone
cricoid cart.

lungs - spongy elastic bags
air - tubes + cells
blood - vessels + elastic tissue.

veins blood from rt. ventricle by pul. arteries

SECTION OF THE EYE



Expiration - chest is made smaller, elastic lungs made smaller, internal inter-costal muscles contract, chest becomes becomes narrow, diaphragm raised, chest made shallower, abdominal muscles contract, abdominal muscles press in under side of diaphragm, air is pred through trachea.

The Eye.

Orbit - 14 bones.
The eye is made up of the eyeball.
muscles
blood vessels.
nerves
fatty tissue
lachrymal or tear glands.

Tear gland - washes eye.
Coats of the eye -
outer coat - sclerotic - tough, fibrous, opaque.
cornea - covers front of the eye and is transparent.
middle coat - choroid - soft, dark brown ligament. terminates in front by ciliary processes
iris - a circular perforated diaphragm with an aperture called pupil.
interior coat - retina - nervous tissue, supported by connective tissue.
- made up of rods and cones.
Vitreous humor - jelly-like substance that fills out the eye.

Signs of defective eyesight - sore eyes.
- red eyes.
- eyes that pucker, blink, squint.
- eyes that can't see maps or diagrams well.
- eyes that make headaches, or are afraid of a bright light.
- eyes that turn the head sideways

a slanting for reading.

Short sight - concave glasses
because lens is too convex.

Long sight - convex glasses.
because lens is too flat.

Blind spot - where optic nerve comes into eye.

Yellow spot - an increase of nerve cells.

Kidneys.

Situation - at the back of the abdomen.

Size - 4-5 oz. 4" by 2½" right kidney lower and thicker than the left.

Structure - has a concave surface, with a long depression called the hilus.
- surrounded by fat and covered with peritoneum

Vessels - renal artery - blood from aorta.
renal vein - blood to ascending vena cava.
ureter - carries fluid secreted from the blood to the bladder.

Bladder - a muscular bag, lined with mucous, covered by peritoneum.

Vessels - ureters - convey urine to the kidneys
urethra - for the discharge of the urine.

Use - can hold 1 pt. of water
- to retain urine, and to discharge it at intervals.

Kidneys - covered with a tough outer coat - capsule.
- 2 parts - cortex - outer
medulla - inner.
ends in points, called pyramids.

Kidneys - secrete much water, much urea, little uric acid.
Skin - secretes much water, little urea, little carbonic acid gas.
Lungs - secrete much water
much carbonic acid gas.

Daily secretion of kidneys - 3 lb. H_2O, 1 oz. urea, 10 gr. uric acid, various salts & dissolved gas.